CARCINOMA OF THE BONES FOLLOWING CARCINOMA OF THE BREAST.*

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Mrs. F., aged sixty-one years, consulted me in January, 1906, in regard to a tumor involving the left breast, which had been giving her some uneasiness for several months. Upon examination I found a distinct mass in the substance of the breast, which I considered carcinoma, and advised its removal. The breast was removed with axillary glands in February, 1906, and the patient made a good recovery. Three months after the removal of the growth the patient complained of pain in the lumbar region of left side, extending into the left thigh; this pain was intermittent. She passed out of my observation in June, when she went away for the summer, but returned to my care in October. She stated that she had suffered quite severely at times during the summer from pain in the lower lumbar region and thighs. At this time she was not able to walk well without the aid of crutches. Walking became more difficult, and she finally was compelled to abandon it entirely, although she was able to sit in a chair. After sitting for a time she complained of pain in lumbar region. Examination of the back showed no kyphosis, but there was tenderness on pressure over the lower lumbar vertebræ and sacrum and pain over the trochanters. The pain also extended to the thighs as far as the knee joint. There was no paralysis of the lower extremities and the knee jerks were normal. There was no loss of power in the bladder or rectum. The pain was intermittent and was described as acute at times and sometimes dull in character. The temperature was slightly elevated for a few weeks before the patient's death. There was no evidence of any recurrence of the growth at the seat of operation.

After repeated examinations and a careful study of the case it was thought probable that her symptoms were due to a sec-

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ondary carcinomatous growth in lumbar vertebræ or sacrum. Dr. H. A. Hare, who saw the patient with me upon two occasions, was inclined to this diagnosis. During the last month of her life the patient was kept comfortable by the use of a moderate amount of morphia. Death occurred suddenly from angina pectoris on January 7, 1907.

Autopsy.—The lower lumbar vertebra was found much softened, and cord and dura were thickened. Report of the microscopical examination of the fifth lumbar vertebra, cord and dura, made by Dr. A. G. Ellis, was as follows:

"Sections from the fifth lumbar vertebra show at points marked erosion and disappearance of the osseous structure which remains only in the form of isolated, irregular fragments. In these areas is a new growth made up of spheroidal epithelial cells and an irregular fibrous stroma. The nuclei of the former react well to stains, the protoplasm is in many instances granular and fragmenting. In a few areas are fairly distinct alveoli bounded by fibrous tissue and containing masses of the described cells. Tissue of this type surrounds many of the fragments of bone and extends into the overlying soft parts.

"Sections from the spinal dura in the region of this vertebra (4) show at one circumscribed point a decided thickening. Here the membrane is twice the thickness of the remaining portion, the increase being entirely due to fibrous tissue, epithelial elements being lacking. This area corresponds to the thickening of the dura noted macroscopically at the extreme lower end of the removed portion.

"*Diagnosis.*—Fatty degeneration of heart; scirrhus carcinoma of lumbar vertebra; chronic productive pachymeningitis of overlying dura."

Dr. B. F. Curtis [1] reports a case of carcinoma of the vertebra following removal of the breast for carcinoma. In this case, seven months after removal of the breast, loss of power over the bladder and rectum was observed, the knee reflexes were lost, and there was paralysis of the parts below the line of the umbilicus. There was also kyphosis in the mid-dorsal region. Pain was not severe. Laminectomy was performed, and upon exposing the cord it was found congested; the sixth dorsal vertebra was softened and projected slightly into the spinal canal. The pressure symptoms were not relieved by the operation. The patient died sixteen days after operation.

Primary carcinoma of bone is extremely rare, whereas

[1] N. Y. Med. Record, 1898, vol. i, p. 347.

secondary metastatic carcinoma of this tissue is not uncommon. The occurrence of metastatic carcinoma of bone, following primary carcinoma of the breast, is well recognized. The infection may occur months or years after the removal of the primary tumor. The character of the secondary tumor always corresponds to that of the primary one. The infection of the bone may occur by direct extension of the growth to this tissue when it originates in tissues adjacent to the bone, as is not infrequently seen in involvement of the ribs in recurrent carcinoma of the breast.

The development of carcinoma in bone distant from the primary growth results from the localization of carcinomatous emboli, and is said to occur at that portion of the bone subjected to the greatest traction or pressure. Carcinomatous infiltration of bone causes diffuse lacunar absorption, rendering the bone soft and easily bent or broken. There may also be present at the seat of infiltration a tendency to the development of new bone tissue; this condition has been described as osteopathic carcinosis.

According to von Recklinghausen, the bones most frequently the seat of secondary metastatic carcinoma are the vertebræ, femur, ribs, humerus and cranial bones. The vertebræ are said to be not infrequently the seat of carcinomatous infection from carcinoma of the breast, but my personal observation of a large number of cases has shown only one case in which the vertebræ were involved. On the other hand, Dowd [2] reports 29 cases operated upon for carcinoma of the breast, in 5 of whom symptoms of spinal metastasis developed. It should, however, be noted that no autopsies were recorded in any of these cases.

My experience with secondary carcinoma of the bone, following carcinoma of the breast, located at points not adjacent to the primary growth, has been confined to the following cases:

CASE I.—Carcinoma of the lumbar vertebræ in the case previously reported.

[2] ANNALS OF SURGERY, 1898, vol. i.

CASE II.—Carcinoma of the left clavicle in a woman of fifty years, which developed five months after the removal of the left breast. In this case the patient complained of pain in left clavicle, which was fractured while turning in bed. In this case a marked tumor developed at the seat of fracture before her death, which occurred two months subsequently.

CASE III.—A woman, aged forty-five, removal of breast for carcinoma, in whom six months subsequently there were no signs of local recurrence, but the patient complained of pain in both femora. One morning while sitting in a chair both femora were fractured, apparently by muscular action. This patient before her death, which occurred two months later, developed a tumor of the right humerus and one of the left parietal bone.

CASE IV.—Woman of fifty years, who had had right breast removed for carcinoma, who, eight months after the removal of the breast, fractured her right femur while turning in bed, and developed a large spindle-shaped tumor at the seat of fracture. Death occurred several months after the appearance of the tumor of the femur.

CASE V.—Woman, aged fifty-five years, who while walking in her room felt the left leg give away under her, and she fell to the floor. When I saw her a few hours later I found a marked tumor at the middle of the left femur, mobility and crepitus were marked. Upon questioning her, she said she had for some months suffered from pain in the left femur and a painful tumor of the left breast which had never been operated upon. Upon examination of the breast I found a firm tumor involving the left breast, adherent to the skin, which presented the typical pig-skin induration. This patient died several months later of pulmonary metastasis.

The most prominent symptoms of metastatic carcinoma are localized pain, which may be dull or acute in character, and thickening of the bone at the seat of infection. The former is most common, and should direct attention to the occurrence of this affection. In this affection of bone, operative procedures offer little chance of relief, although in cases involving the spine, where pain and pressure symptoms are marked, as in the case reported by Curtis, it would seem justi-

fiable to resort to operation, if only for temporary relief of the symptoms. In cases involving the long bones, the possibility of fracture, which adds greatly to the patient's discomfort, should not be overlooked, and the patient should as far as possible be carefully guarded against the occurrence of this accident.